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ABSTRACT

Various model programs for comprehensive health service delivery to adolescents have been proposed and implemented, but few of these programs have been evaluated systematically. This monograph identifies 664 programs that provide comprehensive or integrated services and reports the results of a survey completed by 435 programs. Two-thirds of all such programs are in urban communities; half of all rural programs are school-based. Programs can be grouped into the following models: (1) school-based or school-linked programs (45%); (2) health center-based programs (9%); (3) hospital-based programs (22%); (4) health department-based programs (8%); (5) community-center-based (11%); and (6) other models (5%). Nearly two-thirds require parental consent for the adolescent to receive services, with school-based programs the most likely to require parental consent. In reality, few programs provided comprehensive care such as drug and alcohol treatment or recreation programs. Many more service programs and systematic attempts to provide services are needed if adolescents are to have real access to comprehensive health care. (Contains 5 figures, 20 tables, and 74 references.) (SLD)

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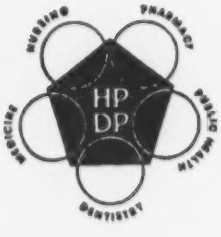

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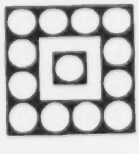

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COMPREHENSIVE ADOLESCENT HEALTH SERVICES IN THE UNITED STATES, 1990

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Executive Summary

Adolescence is often thought of as a time of good health. Yet, the poor health status and risky behaviors of many of today's youth put their future at risk. The United States Congressional Office of Technology Assessment estimates that one in five adolescents suffers at least one serious health problem, and one in four 10 to 17 year olds (7 million children) are believed to be at high risk for school failure, delinquency, early unprotected sexual intercourse and substance abuse. Unique challenges are associated with the planning and organization of health services for these adolescents. Over the past decade, various model programs for comprehensive health service delivery to teens have been proposed and implemented. However, few of these programs have been systematically evaluated. If services are to meet adolescents' needs, it is important to know which comprehensive service delivery models for adolescents are able to improve adolescents' health.

In this monograph we identify all of the programs that provide comprehensive or integrated services to adolescents in the US. We identify a national census of 664 programs, and report the results of a 1990-91 survey of program directors from 435 (67%) of the programs in the census. These programs serve approximately 5.3% of US 15-19 year olds. Adolescents served by these programs average 3.6 visits each year. The Northeastern states have the greatest density of programs. Two thirds of all programs are in urban communities; half of all rural programs are school-based. Five program models describe comprehensive adolescent health services: school-based/school-linked programs (45%); health center-based (9%); hospital-based (22%); health department (8%); community center-based (11%) and others (5%), which included the relatively few free standing programs for youth.

Comprehensiveness is difficult to define. Most experts focus on systems issues, such as confidentiality or coordination rather than on specific services. Although all of the programs identified in the national census were nominated for being comprehensive, in fact, by self-definition, only 262 (60%) report that they provide comprehensive health services on site. Compared to an operationally defined gold standard, self-description accurately describes programs that are truly comprehensive. Comprehensive programs provide: preventive, first contact, and longitudinal health care; laboratories; social work services; STD treatment; pregnancy testing; family planning; AIDS education, nutrition education, and general health education; psychological or other mental health counseling; pharmacies; contraceptive services; HIV testing; and outreach.

Access to care, as measured by convenience, visibility, and confidentiality, varies considerably across different program models. Non-comprehensive programs and school-based programs least often provide sexuality-related services; unfortunately, these differences are not compensated for by greater coordination of services. Certain services were especially absent from some types of program. Hospital-based programs neglect outreach, and health center and health department programs provide fewer mental health services than other program models. Relatively few programs, regardless of type, provide either drug and alcohol abuse treatment, recreational opportunities, or educational assistance.

- Eighty percent of all programs are open all five week day; half provide services after 5:00 p.m; and 21% of all programs are open on weekends.

- Nearly two-thirds (62%) of programs require parental consent for adolescents to receive services. School-based health programs (80%) are most likely to require consent for services.

- Outreach is an important component of programs' visibility to adolescents in need of services. Over half (56%) of all programs provide outreach, including 88% of community center programs, compared to 36% of hospital-based programs.

- Most programs (68%) use screening questionnaires to increase the amount and accuracy of information obtained from their clients or patients. Few (19%) use case managers to monitor compliance or referrals. Community centers (40%) are more likely than other program types to involve case managers.

- Programs' administrative parent organizations are a major predictor of comprehensiveness, regardless of program service delivery site. Programs run by health sector organizations, rather than by other agencies, are most likely to provide a full range of services. School- based programs were more likely to be comprehensive if they were administered by health organizations than by schools or educational agencies, supporting Dryfoos' conclusion that control of school-based health programs is most appropriately based outside of schools.

- Most programs depend on multiple sources of funding, reflecting the patchwork of categorical funding streams available for adolescents. Comprehensive programs have higher annual operating budgets and are more likely to receive private foundation

funding than non-comprehensive programs. Non-comprehensive programs are slightly more likely to receive state government funding. Only 41% of programs collect patient fees.

- Almost all programs provide AIDS education and other health education. Seventy one percent of all programs provide STD treatment on-site. Only 27% of school-based programs provide contraceptives, and fewer than half of all programs provide HIV testing.

- Two-thirds of programs provide counseling services on-site. Only 37% of programs target services to adolescents who abuse alcohol or other drugs, and fewer than one-fourth of all programs actually provide drug or alcohol abuse treatment on site.

- Educational services, community service opportunities and mentorship are provided by relatively few programs. Many programs, especially those in hospitals and health departments, neither provide nor refer adolescents for educational services. Community centers are most likely to address educational issues; programs based in health institutions have a difficult time integrating health and educational goals.

- Programs provide these services with a median of 4.3 full-time and 3.0 part-time employees on their staff. The average program has 1.9 FTE primary health care providers and 2.3 FTE nursing staff. Community center programs have peer counselors, teachers, and outreach workers on staff more often than other types of programs.

Relatively few adolescents are served by comprehensive adolescent health programs. Despite some of the limitations of individual program types, if America's adolescents are to have access to comprehensive health programs, many more service delivery programs and systematic attempts to provide more complete services are needed. Stable, secure funding systems, better integration, and more specific administrative relationships between health, education and other service sectors, perhaps mandated by funding agencies, would help programs provide comprehensive services and would ensure coordinated efforts with other providers.

Our findings are a first attempt to describe the services available to adolescents in the US. We describe some of the strengths and weaknesses of existing programs, in the hope that this may strengthen existing programs and promote the development of additional comprehensive services for youth. Advocacy and leadership from provider organizations, including physicians and health educators, are an important part of improving the availability and quality of services to all youth. Actually improving the services provided will depend much more upon local community administrative leadership, upon fostering strong alliances and shared goals between health, education and other youth serving organizations, and upon the availability of resources, financial and otherwise, dedicated to adolescent health.

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Introduction

American adolescents face major public health problems, including unintentional injury, homicide, suicide, pregnancy, sexually transmitted disease, and substance abuse. Although most adolescent mortality and morbidity is preventable, interventions, whether community-based, school-based, or clinically oriented, have met with only limited success.

In the 1960's providers and politicians began to talk about the "new morbidities" of childhood.[1] These "new" problems were social as well as medical, and it became conventional wisdom that these required counseling, health promotion and comprehensive preventive services in addition to more traditional curative health care. In the past decades, the specialty of adolescent medicine has also come into maturity, effectively advocating comprehensive biologic, psychological and social care of teenagers.[2] But the "new morbidities" are now more than 25 years old, and many adolescents are still not served well by our currently organized system of care.[3]

In this monograph, we review the status of adolescent health and issues that affect access to care for youth; present a model for adolescent health services delivery systems, services, and outcomes; identify a national census of 664 programs that provide comprehensive or integrated service delivery to adolescents in the US; and, report the results of a 1990-91 survey of 435 (67%) of the programs identified. Our study is a first attempt to systematically review all of the existing programs for adolescents. We discuss issues that affect programs' impact and success, and explore implications for future efforts to provide comprehensive services to youth.

Adolescent Health Status

The perception that adolescence is a time of good health is untrue. The United States Congressional Office of Technology Assessment estimates that one in five adolescents has at least one serious health problem.[4] Five to ten percent have chronic disease or disability, and half these youth have conditions severe enough to limit their daily activities. In addition, as many as one in four adolescents are believed to be at high risk for school failure, delinquency, early unprotected sexual intercourse, and substance abuse.[5]

Unintentional injury and violence cause 76% of deaths and account for a major share of chronic illness and disability in adolescents.[6] Among 15-24 year olds, injuries cause 4 million years of lost work and are the single most costly American health problem.[7]. Motor vehicle accidents kill more adolescents than all other causes combined.

Adolescents also have serious mental health problems. Although most adolescents are happy most of the time, when surveyed about their feelings, more than half of all adolescents reported feeling sad and hopeless, 45% reported having difficulty coping with home and work, 34% had thought seriously about committing suicide, and 14% had actually attempted suicide.[8] Suicide and homicide are the second and third leading causes of adolescent mortality. For black male adolescents, homicide is the leading cause of death.[9] Over the past three decades, adolescent homicide rates have more than doubled, and suicide rates have tripled.[10]

In 1990, the CDC's Youth Risk Behavior Survey, a national school-based survey of adolescent's health

related behaviors, found that 54% of all 9-12th grade students reported ever having had sexual intercourse. More than one third were currently sexually active, and 39% reported having had sexual intercourse in the three months preceding the survey.[11] However, only 45% of sexually-active youth reported consistent condom use,[11] and only one-third of sexually active adolescent girls regularly used any contraceptive methods. An estimated 2.5 million adolescents contract a sexually transmitted disease (STD) each year, and up to 25% of all adolescents will have had at least one STD before leaving high school.[12] While most sexually-active adolescents are not promiscuous, 27% of males and 12% of females report having had five or more sexual partners. Thus, despite vigorous public health efforts, many adolescents' sexual behaviors put them at risk for the acquisition or transmission of the human immunodeficiency virus (HIV).[12]

The Office of Technology Assessment estimates that one in five adolescents has at least one serious health problem[4]

Nearly one million teens become pregnant each year.[13] Pregnancy is the most common reason adolescent girls leave school,[14,15] resulting in more limited job opportunities and contributing to the seven-fold higher poverty rate among adolescent mothers compared to adult mothers.[16] Although the proportion of 15-19 year old girls who became pregnant (11% each year) has not increased, the pregnancy rate for younger teens increased by 23% from 1973 to 1987.[5]

Experimentation with alcohol is almost universal among adolescents; at least 90% of high-school seniors

in nation-wide surveys report some alcohol use.[17] Furthermore, 35% of high school seniors report binge drinking, or drinking to abuse (five or more drinks at one time) within the past two weeks.[18] Alcohol use contributes to motor-vehicle related injury and increases the likelihood of subsequent drug use, violence, and high-risk sexual behavior.[17] Although regular use of illicit drugs among high school seniors declined to less than 20% in 1989, over half of all students had tried drugs. The use of marijuana, cocaine, amphetamines and inhalants has decreased, however, crack and PCP use have not decreased among high school seniors. There has been little change in alcohol and cigarette use, too. Sixty percent of high school seniors report using alcohol in the last month and 33% have had five or more drinks in the last two weeks.[19]

Adolescents not in school also have significant health problems, including higher rates of substance abuse, unprotected sexual activity, and other risky behaviors.[5] Dropouts are less likely to successfully enter the workforce and are more likely to live in poverty.[14] As many as 14% of teenagers leave high school before graduating; drop-out rates are higher for minorities.[5] In 1986, 6% of 16 to 17 year olds and 12% of 18 to 19 year olds had dropped out of school before graduating.[5] While two-thirds of America's students are in grades appropriate for their age, 20% are one year behind and 4% are two or more years behind in school, putting them at greater risk for dropping out.[5]

The 700,000 adolescents confined in juvenile justice facilities each year are at especially high risk for the

problems described above. Many of these adolescents have serious health problems when first incarcerated and do not receive adequate care during their confinements.[1] The 1.2 million adolescents who run away from home each year are also at increased risk.[20] Most runaways return home, but 25% become chronic "street kids," often as a way of coping with dysfunctional families. Many of these adolescents have been abused or neglected, are at higher risk for suicide,[21] and use drugs or engage in prostitution in order to survive.[20] At least half of all runaways suffer severe long-term social and medical problems that persist into adulthood.[21,22]

Poverty is the most important factor affecting the health status of adolescents.[23] Over half the Black, Hispanic, Native American and Asian children in the United States live below the poverty level.[24] Compared to adolescents who are not poor, these youth are more likely to drop out of school and have fewer job opportunities. They face increased rates of adolescent pregnancy, sexually-transmitted disease, AIDS, substance abuse, unintentional injury and homicide.[6,14,25] Although 20% of all teens have some illness or handicap, certain ethnic or racial sub-groups have even higher rates of health problems.[26] In one study, 75% of inner-city youth reported needing care for one or more health problems, and two thirds of these adolescents had one or more problems confirmed on physical examination.[27] Despite these needs, poor youth are only half as likely to identify a source of health care as adolescents of higher socioeconomic status.[28]

Access to adequate and appropriate health services remains a major problem for adolescents. Adolescents have limited financial resources, and yet all require preventive care, and many need other services (such as counseling) that are poorly reimbursed by most health insurance. Teens also comprise a substantial portion of the uninsured in the US.[29] However despite the growing chorus of voices seeking change in the US health care system, few proposals speak directly to the special needs of adolescents. The Society for Adolescent Medicine has recently developed seven criteria for access to care for adolescents: availability; visibility; quality; confidentiality; affordability; flexibility; and coordination.[30] These criteria are described in greater detail in the box on the next page. Additionally, in presenting our survey results we use several of these criteria to describe how different comprehensive adolescent programs deliver services to their clients.

Many adolescents are uninsured...even fewer have adequate coverage or financial resources for necessary preventive care or other services...

Society for Adolescent Medicine Criteria for Access to Care for Adolescents[20]

- **Availability:**

  Age-appropriate services and trained health-care providers must be present in all communities. The location of services and the hours of operation should consider the demography and activities of the target population. School-based clinics, transportation to service sites, and extended service hours are examples of strategies that may affect service availability.

- **Visibility:**

  Health services for adolescents must be recognizable, convenient, and should not require extensive or complex planning by parents or adolescents. Because many adolescents have difficulty with long-term planning and often do not understand the consequences of their behaviors, they require services that are available on a spontaneous basis. Outreach, including education about how to use the system and about the need for preventive care, is also an important component of adolescent health services.

- **Quality:**

  A basic level of service must be provided to all youth, and adolescents should be satisfied with the care they receive. Health professionals who provide basic services to adolescents must be able to deal confidently with a broad range of adolescent health concerns and should demonstrate a basic level of competence.

- **Confidentiality:**

  Adolescents should be encouraged to involve their families in health decisions whenever possible. However, when such involvement is not in the best interest of the adolescent or when parental involvement may prevent the adolescent from seeking care, confidentiality must be assured.

- **Affordability:**

  Employment-based proposals for health insurance reform must cover adolescents either as employees or as dependents. Public and private insurance programs must provide adolescents with preventive services designed to promote healthy behaviors and decrease morbidity and mortality. In addition, provider reimbursement must reflect the additional time and intensity needed to provide appropriate care for adolescents.

- **Flexibility:**

  Services, providers, and delivery sites must consider the cultural, ethnic, and social diversity among adolescents. In addition, providers must be able to assess an individual adolescent's developmental readiness and to assist youth in making the transition between pediatric and adult care.

- **Coordination:**

  Service providers must coordinate access to comprehensive services that influence the health behaviors of adolescents. This implies a broad range of intersecting activities and services linking medical, mental health, social services, and others. When services are categorical, a mechanism must exist to help adolescents pay for and obtain necessary care from multiple sites and providers. In addition, providers must understand and facilitate entry to specialized services for those adolescents who require them.

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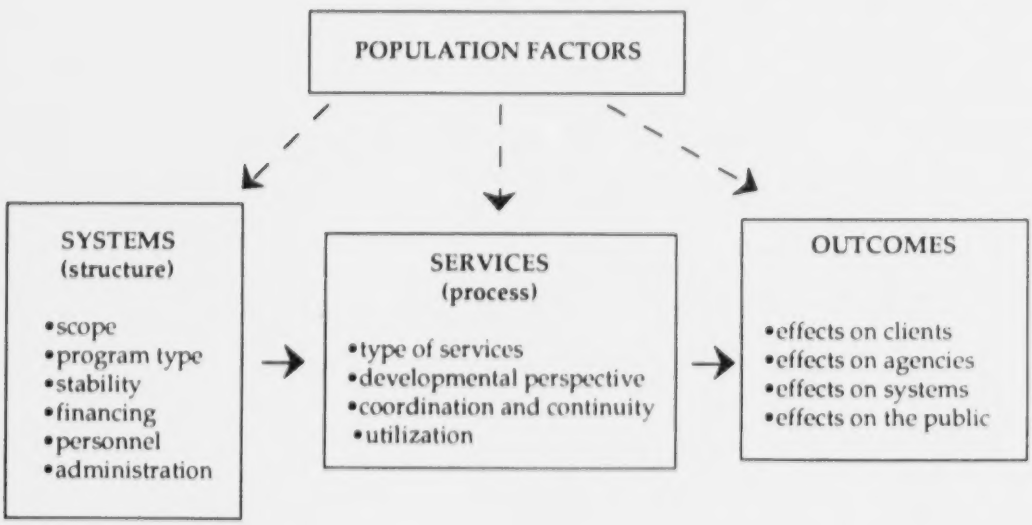
Comprehensive Adolescent Health Services

"Comprehensive" health programs for adolescents implies a broad range of intersecting activities and services. In order to be "comprehensive", traditional medical services must be linked to many other services and to social institutions that influence adolescents' health behavior.[1,31] These settings provide critical opportunities for health promotion and disease prevention, and for discussion of sensitive issues, such as sexuality and substance abuse.[27,32] Many youth advocates have repeatedly stressed the need for comprehensive health services as a critical part of promoting healthy and productive youth. The social and medical problems of teenagers have also been the focus of numerous conferences and commissions designed to promote comprehensive or consolidated service delivery systems for adolescents.[4,15,24,33,34,35,36]

Previously, Hein had described different models for adolescent health service delivery, including: hospital based adolescent clinics; school-based health clinics; free-standing multi-service centers; office based practices; and HMO's.[37] Each has been proposed as a model for comprehensive service provision for youth.[37] In this study, we too found five models which help describe the different ways comprehensive adolescent health service programs are organized. These include school-based programs, hospital-based programs, community center programs, health center programs, and public health department programs. We also define a sixth category, "other programs", which contain most of the relatively few free-standing multi-service centers, and several other less commonly found program types.

Our study is built upon efforts to provide and enhance provision of comprehensive, coordinated services to adolescents over the past few decades.[24] These initiatives have sought innovative ways to attract adolescents and have tried to integrate a wide range of youth-oriented services with traditional health care delivery. However, before surveying these programs, we first developed a typology for describing and evaluating comprehensive adolescent service delivery programs.[38] This typology, shown in summary form below, is derived from Starfield's model for health service delivery systems.[39] We have previously validated the typology's categories and subcategories through site visits to 15 diverse programs.[38] In this report, we use the typology to describe and compare the organizational systems and actual services provided to adolescents by individual programs.

A typology of adolescent services



Previous evaluations of comprehensive services have tended to focus on adolescent outcomes, often using a standard for "effectiveness" well beyond general expectations for traditional health services. For example, the Robert Wood Johnson Foundation's Consolidation of Services for High-Risk Adolescents Program was a hospital clinic-based model targeted to adolescents in communities with high rates of teen pregnancy, homicide, suicide and substance abuse. These teaching hospital and community based programs were found to be less successful than had been hoped for at reducing risky behaviors, improving health outcomes, or actually coordinating services.[40,41] However, these programs were successful at reaching high risk youth, training adolescent providers and institutionalizing adolescent services.[40,41]

Evaluations of school-based health clinics (SBHCs) have been similarly problematic. School-based programs are a promising model for comprehensive adolescent health care and are often proposed as the solution to access barriers for adolescents in school. However, the data on their effectiveness is both limited and mixed.[42] School-based clinics show high utilization rates, often reaching 75% or more of students.[42,43] Some SBHC's have also reported success in better contraceptive practices, decreased unintended pregnancy or substance use rates, and better academic outcomes.[44,45,46] Others, in well designed studies, have shown no effect.[42,47] SBHC's have also been criticized for not always being able to provide services that youth need. Few SBHC's provide contraceptive services on site[47,48] and although one third to one-half of the adolescents surveyed in schools with SBHC's

have reported drug or alcohol use, only 1% of clinic chart notes identified substance use as a problem.[49]

The literature on independent multi-service centers for adolescents is also limited.[37] Often promoted as exemplary models, these comprehensive programs integrate a large number of diverse, free, services within a single site and often serve many youth at highest risk, including homeless and runaway adolescents. However, critical assessment of the reasons for their successes are relatively unexplored.[30,37,50] Our study is a first attempt to systematically review all of the existing comprehensive programs available to adolescents. As such, it is a first step towards understanding how different programs provide different things, and thus provides an essential prerequisite to truly understanding how to evaluate outcomes for adolescent health services.

National Census of Comprehensive Adolescent Health Programs

To understand the diversity of comprehensive adolescent health programs in the United States, we first needed to identify all of the existing comprehensive health programs for youth. To develop this national census of adolescent health services, we obtained program nominations from: publications; mailing lists; adolescent medicine fellowship directors; other adolescent health experts; provider organizations; state and local Maternal and Child Health directors; and others. Programs funded by various foundation sources, and programs nominated for the AMA's Adolescent Health Initiative Awards, were also included. We called program contacts and many others, asking them to identify all of the places that adolescents might go to receive "comprehensive" or integrated health services in their state, city and local area. Comprehensive services were defined as specific, identifiable places that adolescents could go to receive health care and other services in communities. Using a snowball sampling process, a total of 664 programs were identified.

We validated the accuracy of our list in 4 states, (Kentucky, Maryland, Mississippi, and Washington), and in one large city, (San Francisco including the Oakland Bay Metropolitan area), by asking several experts in adolescent medicine and school health to review program lists for completeness. Based on their review, we believe that we have identified 85-90% of all programs nationally. We then surveyed by mail program directors to establish where services are provided, what type of services are provided, by what providers, with what sources of funding, and whether evaluations have been performed.

After two mailings and telephone follow-up, 453 programs responded. Eighteen programs were excluded either because they did not provide health services or because they served only pre-adolescent children, leaving 435 programs, a 67% response rate. The 211 non-respondents were relatively equally distributed throughout the regions of the US. However, programs located in rural (non-metropolitan statistical area (MSA) counties, were slightly more likely to respond to the survey than programs located in urban MSAs (78% vs. 67%, p≤ .01).

We identified 664 programs providing comprehensive or integrated adolescent health services; 435 programs (67%) responded to our survey.

All data were coded directly from the survey. Additional population variables were also entered from the Area Resources Files,[52] and the existence of state or regional adolescent health networks as noted by specific programs and by state MCH adolescent health coordinators was also linked to the survey data. Survey data was analyzed using SAS,[53] and graphical analyses were done with Atlas Map Maker software.[54]

Results

Our survey was limited to asking programs about their systems and services rather than trying to address program "success" or other outcomes. In presenting the results, we first define different program models and review the geographic distribution of different types of programs. We then define comprehensiveness, and review the services provided by programs that do and do not describe themselves as comprehensive. Subsequent sections deal with: program utilization; the organizational factors affecting access to care; administrative systems; budgets and funding sources; services provided; staffing; and, evaluations. In each section of the results, we first present overall findings for the 435 programs that responded to the survey. Additionally, we discuss relevant differences between programs, based on different program models and on program comprehensiveness.

Program service delivery sites

The adolescent health service programs in our survey are located in a variety of different places. Many adolescent health services are located in high schools, hospitals, community centers, neighborhood centers, health centers, and health departments. Fewer programs are in middle schools, alternative schools, private medical practice, HMOs, independent social service agencies, or religious organizations. Although exemplary programs exist, free-standing multi-service centers for youth are extremely rare. Additionally, although both Job Corp and juvenile justice based comprehensive programs are known to exist, none were counted among the survey respondents.

Program Service Delivery Sites

	Number	Percent
High school	116	27
Hospital	95	22
Community center	50	11
Health center	40	9
Health department	35	8
Schools/health center/hospital	24	5
Middle school	22	5
High school/middle school	21	5
Other	9	2
Alternative school	8	2
Private medical practice	6	1
Religious organizations	3	1
High school/alternative school	3	1
HMO	3	1
TOTAL	**435**	**100**

Program models

For this report, we have collapsed the program site categories into five mutually exclusive program models: school-based clinics; hospital-based clinics; health centers; public health departments; community or neighborhood health centers, and a sixth category, "others". The 5% of programs that identified themselves as both school and health facility based have been counted as "school-based". Thus, 45% of the responding programs are school-based health programs; 22% are located in hospital settings.

Program Models

	Number	Percent
School-based	194	45
Hospital-based	95	22
Community center	50	11
Health center	40	9
Health department	35	8
Other	21	5
TOTAL	**435**	**100**

Distribution of programs

Adolescent health programs are located in almost every state in the United States, with the exception of Vermont and some states in the Mountain and West North Central regions (Montana, Nebraska, North and South Dakota, and Wyoming). Compared to the proportions of adolescents in the population, the Northeastern states have significantly more programs than other regions. Thirty-two percent of programs are located in the sixteen Southern states. As seen on the map on the next page, almost all of the 83 (19%) programs located in the Midwest are in the states bordering the Great Lakes: Minnesota, Wisconsin, Illinois, Indiana, Michigan, Minnesota and Ohio. Similarly, most of the 68 programs located in the West are concentrated in California, Oregon, and Washington.

Two thirds of all programs (64%) report being in urban communities. Most (86%) of the hospital-based programs are in urban communities and 37% of these

Comprehensive Adolescent Health Service Programs, U.S., 1990

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Source: Effective Health Services for Adolescents. JD Klein, et al. Cecil G. Sheps Center for Health Services Research; Center for Health Promotion and Disease Prevention; Center for Early Adolescence. University of North Carolina at Chapel Hill. 1992. Funded by Grant No. R48-CCR402177 from the Centers for Disease Control, Grant No. 1-F32-HS0035-01 from the Agency for Health Care Policy and Research, and by the AMA Education and Research Foundation.

hospital-based programs target inner city youth. More than half (56%) of the school-based programs and 29% of health department programs also describe themselves as being in urban communities. Eighteen percent of programs are suburban, 19% and 21% are 'county' and 'small town', respectively and 27% of programs describe themselves as serving rural populations. Of these 115 self-defined rural programs, 56% (65/115) are school-based programs, and 18% (21/115) are health department based programs. In contrast, 16% of programs are physically located in rural areas, and 84% are located in urban or suburban metropolitan statistical areas (MSAs), as defined by the US Census Bureau."

Programs in the U.S. Regions*

Region (States)	North East (ME, VT, NH, NY, MA, CT, RI, PA, NJ)	South (WV, VA, NC, SC, GA, FL, KY, TN, MS, AL, TX, OK, AR, LA, MD, DE, DC, PR)	Mid West (WI, IL, IN, MI, OH, ND, SD, NE, IA, MN, KS, MO)	West (MT, WY, ID, NV, UT, CO, AR, NM, WA, OR, CA, AK, HI)
Programs percent (n)	33 (144)	32 (140)	19 (83)	16 (68)
Population percent	19	35	24	21

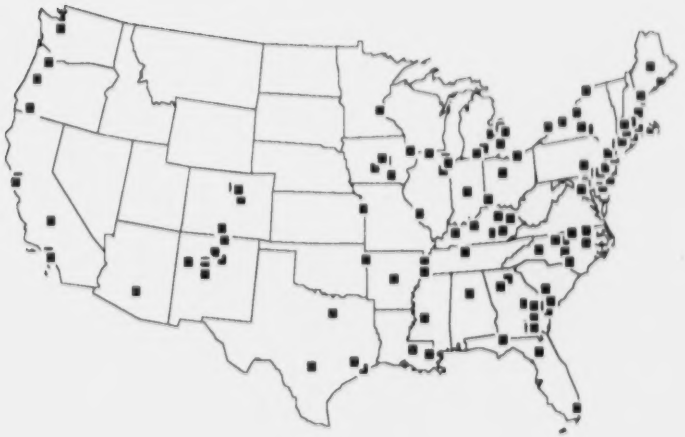
* Overall x^2 with expected=n adjusted for regional population =22 58, p=0 0001

The following maps show the distribution of programs by each program type. The Northeastern public health system is based on community and neighborhood health centers, thus, not surprisingly, 38% of health center programs are in the Northeast. Similarly, the Southeastern public health system is based upon local health departments, and 60% of health department programs are in that region.

Comprehensive Adolescent Health Programs, U.S., 1990

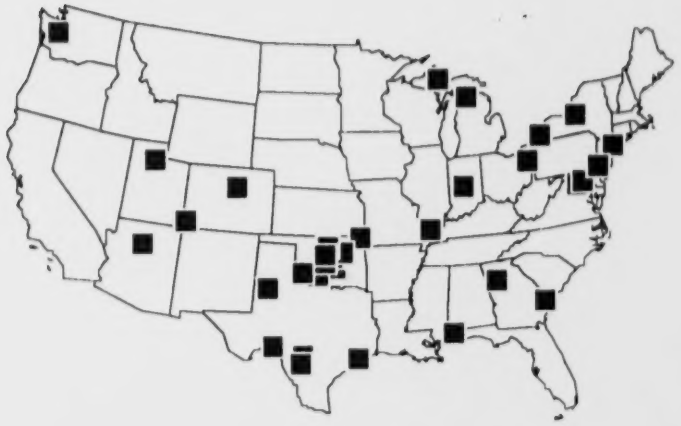
All Programs (N = 664)

Survey Respondents (N = 435)

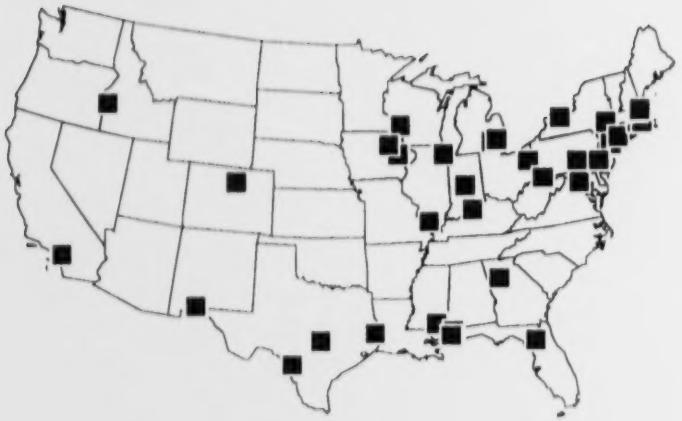


School-Based Programs (N = 194)

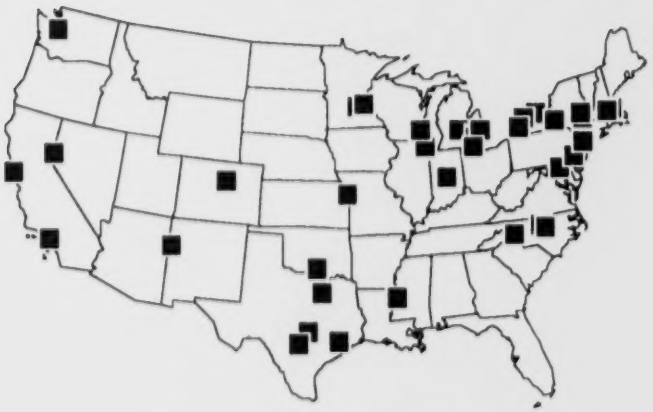
Hospital-Based Programs (N = 95)



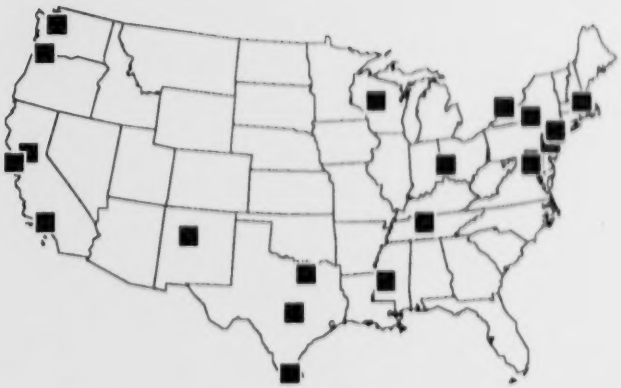
Health Department Programs (N = 35)



Health Center Programs (N = 40)



Community Center Programs (N = 50)



Other Health Programs (N = 21)

Source: Effective Health Services for Adolescents. JD Klein, et al. Cecil G. Sheps Center for Health Services Research; Center for Health Promotion and Disease Prevention; Center for Early Adolescence. University of North Carolina at Chapel Hill. 1992. Funded by Grant No. R48-CCR402177 from the Centers for Disease Control, Grant No. 1-F32HS0035-01 from the Agency for Health Care Policy and Research, and by the AMA Education and Research Foundation.

Comprehensiveness

Although most experts agree that comprehensive services are a critical part of meeting the health needs of adolescents, a specific definition for "comprehensiveness" is difficult to find. "Comprehensive services" is used to mean integration and coordination of services through referral networks, and is also used to mean provision of all services under one roof. A review of the literature on "comprehensiveness" for adolescent health results in a handful of policy articles[4,33,55-57] and several articles about comprehensive school health and/or school-based health clinics.[58-63]

Comprehensiveness is difficult to define...most experts focus on systems issues (e.g., confidentiality, coordination...) rather than on the specific services provided.

The writing on comprehensiveness also focuses on health system issues rather than on specific services that should be provided for adolescents. For example, there is broad consensus that system factors such as confidentiality, affordability, and coordination of services are essential elements of comprehensive care. However, few explicitly describe the services that adolescents should receive if their health needs are to be met, whether in schools, communities, or in other settings.

All of the programs identified in the national census were nominated as "comprehensive" service sites. However, among the 435 programs responding, only 262 (60%) describe themselves as providing comprehensive services to adolescents on-site. In the next section, we describe the continuum of comprehensiveness by looking at the services provided by these 262

self-designated "comprehensive" programs. We identify those services which seem to be part of "comprehensiveness" but which vary across program models. We also propose operational, service-based criteria for assessing the comprehensiveness of individual adolescent service delivery programs.

Services provided by comprehensive programs

All programs that describe themselves as comprehensive provide preventive and first contact health care. Most (89%) also provide longitudinal care. Almost all provide lab services (92%), family planning (87%), STD treatment (94%), pregnancy testing (95%), AIDS education (96%), and nutrition education (87%).

Most programs provide social work services (81%) and either psychological (75%) and/or other mental health counseling (71%). Many comprehensive programs also provide contraceptives (76%) and HIV testing (62%) on site. Pharmacies (63%), parenting education (62%) and outreach (52%) are also provided by many programs. Fewer than half provide prenatal care (46%) or WIC services (37%) on site.

Fewer than one in four comprehensive programs treat drug or alcohol abuse.

Fewer than one in four "comprehensive" programs provide dental care, rehabilitation, drug or alcohol abuse treatment, community service opportunities, mentorship, recreational opportunities, tutoring, or transportation services. Fewer than one in ten provide food, legal aid, GED or vocational training, day care, or shelter services.

Services Provided in Comprehensive Programs vs. Non-comprehensive Programs

Percent providing:	Program self-description: Comprehensive	Non-Comprehensive
	N=262	N=173
Preventive care	100	76
First contact care	99	60
Longitudinal care	89	25
Health education	93	94
Nutrition education	87	79
AIDS education	96	88
Family planning	87	51
Contraceptives	76	32
STD treatment	94	36
HIV testing	62	21
Pregnancy testing	95	57
Prenatal care	46	29
Parenting education	61	72
Psychological counseling	75	54
Mental health counseling	71	53
Family counseling	63	63
Social work	81	67
Drug/alcohol abuse	22	22
Laboratory	92	44
Pharmacy	63	20
Dental care	26	6
Rehabilitaion (PT,OT)	15	3
GED/vocational education	6	23
Tutoring	13	34
Community service activities	27	32
Mentorship	16	35
Food	11	18
WIC	37	20
Day care	8	13
Shelter	2	4
Recreation	9	35
Transportation	20	28
Outreach	52	62

Based on the reported services provided across each of the different program models, we believe the following 17 services should be considered core elements of comprehensiveness: preventive, first contact, and longitudinal health services; laboratory and pharmacy services; psychological or other mental health services; social work; STD treatment; pregnancy testing; HIV testing; contraceptives; family planning; AIDS education, nutrition education and general health education; and, outreach.

Comprehensive Services Provided by Different Program Types

Percent providing:	All Programs	School	Health Center	Hospital	Health Department	Community Center	Other
n = total	435	194	40	95	35	50	21
n = "comprehensive"	262	97	27	88	13	22	15
percent "comprehensive"	59	49	60	93	37	42	71
Preventive care	100	100	100	100	100	100	100
First contact care	99	100	100	99	100	100	93
Longitudinal care	89	84	90	94	83	95	87
Laboratory	92	87	93	99	92	73	100
Pharmacy	63	57	48	72	69	55	87
Psychological counseling	75	78	56	82	62	67	67
Mental health	71	82	59	68	61	77	47
Social work	81	74	78	91	77	91	60
STD treatment	94	88	93	100	100	86	93
Pregnancy testing	95	93	96	98	92	91	93
Family planning	87	78	89	97	100	68	93
Contraceptives	76	46	89	99	100	77	87
HIV testing	62	37	78	83	62	59	80
AIDS education	96	99	93	94	92	100	93
Health education	93	99	78	91	100	96	87
Nutrition education	87	93	85	86	85	77	67
Outreach	56	58	65	36	53	88	35

Certain services are provided in widely varying degrees by different types of programs. For example: psychological counseling is less available in health center and health department programs; pharmacy services are widely available in hospitals and health departments programs but less so in other models; contraceptives and HIV testing are less available in school-based programs; and outreach, although present in many programs, especially in community settings, is provided by few hospital based programs. However, adolescents using health departments are no less likely to need psychological counseling, those using hospital-based services are not less in need of outreach, and adolescents in school-based clinics are no less likely to need contraceptive services.

Comprehensive Services

		Operational gold standard		
		Yes	No	N
Self report	Yes	204	58	262
	No	33	140	173
		237	198	435

Sensitivity=a/a+c= 86%
Specificity=d/b+d= 71%

We defined a gold standard definition of comprehensiveness as providing 13 or more of the 17 services listed above. Using this standard, programs' self-reported comprehensiveness had a sensitivity of 86% and specificity of 71%. An evaluation of self-report using a gold standard derived from the literature yielded comparable results. Thus, self description is a reasonably accurate means of assessing whether programs truly provide comprehensive services. In the remainder of this monograph, we use self-report when describing which programs are comprehensive.

Program utilization

Programs were asked to estimate the total number of different adolescents using their services at least once and the total number of patient encounters during the twelve months prior to the survey. The median number of youth served per program was 720, although the number of adolescents using different programs ranged from 13 to 40,000. The median number of patient encounters during the year was 2077, with a range of 15 to 88,648. The total number of adolescents served by the 435 survey respondents was 605,185, and the total number of patient encounters was 2,175,561. Thus, approximately 3.4% of the US population between ages 15-19, or 2.5% of the population between13-19 ages, were served by these 435 programs in 1990, with an average of 3.6 visits per adolescent. Assuming that non-respondents are relatively similar to respondents, the total census of 664 programs would have served approximately 923,777 adolescents per year, or 5.3% of the US population of 15-19 year old adolescents.

These 664 adolescent health programs serve approximately 5.3% of US 15-19 year-olds.

On average, 67% of program's patients were female and 35% were male. The average ethnicity of patients served was 36% white, 36% Black, 20% Hispanic, 3% Native American, and 5% others. Overall, 10% of program patients were less than 13 years old, 31% were 13-15 years old, 33% were 16-17 years old, 17% were 18-19 years old, and 9% were over 20 years old.

Encounters per Adolescent Served

Program Models	Encounters per adolescent served mean (medians)
School	4.2 (3.2)
Health center	4.4 (3.3)
Hospital	2.6 (2.8)
Health department	2.8 (2.2)
Community center	4.5 (4.2)
Other	2.4 (3.4)
All	3.6 (2.9)

The average number of visits per adolescent per year was 3.6 and this ranged from 2.6 in hospital-based programs to 4.5 in community-based programs. In general, school-based programs and hospital-based programs serve more adolescents than the other models. Interestingly, comprehensive programs serve slightly fewer adolescent patients than programs not providing comprehensive health services, possibly reflecting a greater intensity of service delivery.

Adolescents who used community center, health center, and school-based programs averaged more visits per year than those who used hospital or health department programs.

Organizational Factors: Availability and Accessibility

Hours and days of operation

Adolescents have difficulty anticipating and planning for their health care needs, thus convenient or extended hours makes services more likely to be used. Eighty percent of all programs are open all five week days. Nearly half of all programs provide services after 5:00 p.m. Ninety percent of community center programs and 73% of health center programs are open during evening hours. Fewer school-based (31%) or health department programs (37%) provide services during evening hours. Only 21% of all programs are open on weekends. Twice as many non-comprehensive as comprehensive programs are open on the weekend (30% vs. 15% respectively). Community center programs (46%) are more likely to be open on weekend days than the other program models. School-based (14%) and health department programs (11%) are least likely to be open on weekend days. Most programs (82%) are open all twelve months of the year; however, only 59% of school-based programs are open year round. Eighty-five percent of comprehensive and 75% of non-comprehensive are open all year.

Program Accessibility

Percent Open:	All Programs	School	Health Center	Hospital	Health Department	Community Center	Other
N	435	194	40	95	35	50	21
Weekdays	80	85	85	70	62	88	89
Evenings	47	31	73	46	37	90	57
Weekends	21	14	25	22	11	46	29
Year-round	82	59	100	99	100	100	100

Confidentiality

Legally, parental consent is usually required for adolescents to receive medical care. Exceptions, based on state law, usually include: abuse or neglect; emancipated minors; suicidality; health emergencies; and specific health services such as those related to pregnancy, substance abuse, or STD treatment.[44] Confidentiality has been repeatedly identified as a major barrier preventing many adolescents from seeking health care.[45] In many surveys, adolescents report that they would chose not to seek help or would delay getting care for depression, family planning or STDs unless confidentiality were maintained.[46]

Almost all programs surveyed (96%) agreed that the confidentiality of some of the services they provided were protected by state laws. Sixty-two percent of adolescent health programs require parental consent before adolescents can receive services. School-based programs (80%) were most likely to require consent for services. Community center programs and programs in the "other" category were least likely to require parental consent for services. About half of all health center, community center, hospital and health department programs require parental consent. Additionally, 11% of programs require that parents specifically consent for <u>each</u> service provided adolescents. School-based programs were more likely to require specific parental consent for each service than were other program models.

62% of programs require parental consent for adolescents to receive services.

Regardless of whether or not they require consent, many adolescent health programs commonly involve parents in their program activities. Twenty-six percent of programs report that parents and families of adolescents are always involved in their programs, and 46% report that parents are sometimes involved in their programs. Programs that involve parents were no more likely to require parental consent for adolescents to receive services (75% vs. 72%).

Outreach

Outreach is an important component of programs' visibility to adolescents in need of services. Over half (56%) of all programs surveyed conduct outreach. Most community centers (88%) provide outreach, compared to only 36% of hospital-based programs. More than half of the community centers, 16% of hospital-based programs and 13% of school-based programs also reported providing "street outreach."

Outreach Services

Percent Providing:	All Programs	School	Health Center	Hospital	Health Department	Community Center	Other
N	435	194	40	95	35	50	21
Outreach	56	58	65	36	53	88	35
Street outreach	22	13	30	16	24	54	30
Transportation	24	23	28	16	12	49	15
Mobile medical vans	4	1	6	7	0	11	5

Transportation

Transportation is another barrier affecting adolescents' ability to access health services. Overall, fewer than one-fourth of all programs provide transportation services to adolescents. However, nearly half of the community centers provide transportation. Although the need for transportation in school-based programs is probably less acute, twenty-three percent of school-based health programs also provide transportation. School-based programs that provide transportation were less likely to be comprehensive than those that did not provide transportation (25% vs. 50%, respectively; p=.015). School-based programs that provide transportation were half as likely to provide contraceptives on-site than programs without transportation (16% vs. 35%; p=.12). These differences suggest that some of the school-based programs that do not provide key services on site compensate by coordinating transportation to other care delivery sites. However, the majority of school-based programs provide neither transportation nor contraceptive services.

Community center programs were most likely to provide outreach services and to use case managers to monitor compliance and follow-up.

Needs assessments/screening questionnaires

When combined with a clinical history, screening questionnaires increase the amount and accuracy of information obtained from teens, and are generally well accepted by adolescents.[67,68] Most programs (68%) use a specific protocol for assessing the care needs of

each adolescent using their services. Of these 291 programs, 190 (44% of all programs) use self-administered questionnaires completed by the patient during their visit. Interestingly, four out of five of these programs have developed their own questionnaires. Hospital-based programs (59%) were least likely and community center programs (85%) most likely to use questionnaires or conduct formal needs assessments for each client. In community center programs, half the screening instruments are staff-administered.

Case management

Programs also monitor compliance with service follow-up in a variety of ways. Providers were responsible for monitoring patient compliance and completetion of referrals within the programs in 79% of programs. Sixty-eight percent of providers also were responsible for monitoring referrals to services outside of the program. Only 17% of programs use case managers to monitor follow-up within the program and 19% use case managers to follow-up outside referrals. Fifteen percent of programs report that patients are responsible for their own follow-up. Non-comprehensive programs are more likely than comprehensive programs to have case managers involved in the monitoring of on-site (29% vs. 10%) and off-site (26% vs. 15%) follow-up. Community center programs (40%) were more likely than other program types to involve case managers in monitoring compliance.

Administrative systems

To understand how programs interact within administrative systems, we asked each program to identify their administrative "parent organization". Most adolescent health programs (78%) identified a single entity as their administrative parent; 22% reported administrative relationships with two or more organizations. Among all programs, 77% have health service organizations as their parent organizations. All health department (100%), and most hospital-based (92%), health center (90%), and school-based programs (70%) have health service delivery organizations as their parent organization. Thirty-four percent of school-based programs report having school or educational agencies as parent organizations.

School-based programs administered by health service "parent" organizations provide more comprehensive services than those with educational parent organizations.

Most (71%) programs with health service delivery organizations as parent organizations report providing comprehensive services, compared to 48% of programs with educational agencies and 35% of those with social service agencies. School-based programs with health service delivery parent organizations also provide more comprehensive services than those with educational agencies as their parent organization (71% vs. 48%; $p \leq 0.0001$). Among 97 comprehensive school-based programs, 86% have health services organizations and 26% have educational agencies as parent organizations. In contrast, among 89 non-comprehensive school-based programs, 54% have health related and 44% have educational agencies as parent organizations.

Program Administration

Percent administered by:	All Programs	School	Health Center	Hospital	Health Department	Community Center	Other
N	435	194	40	95	35	50	21
Health service delivery organization	77	70	90	92	100	48	71
Health related organization	8	9	15	3	3	8	10
School or educational agency	22	34	13	16	14	10	5
Social service agency or other organization	16	13	15	2	14	52	19

Networks, alliances and coalitions

Programs were also asked whether they were part of satellite or multi-clinic systems. The majority of community center (76%), health centers (75%), and hospitals (68%) were single site programs. In contrast, 63% of health department programs and 57% of school-based programs were part of a multi-site system,usually consisting of a total of 2 sites.

In addition to formal administrative relationships, 95% of programs reported less formal linkages with other programs or providers. Most of these linkages involve referral networks (96%). Many programs also have joint meetings (64%), formal contact persons (60%) and shared staff (37%). There is little variation in the pattern of linkages between comprehensive and non-comprehensive programs. However, more school-based programs (56%) rely on shared staff than do other program models. Hospital-based programs seem

to have the weakest linkages, with relatively fewer shared staff members, joint meetings or formal contact persons.

95% of programs have linkages with other providers; more than half of school-based programs share staff.

Additionally, four out of ten programs participate in more formal networks of adolescent health service programs or providers. These networks range from state or city level alliances to groups sponsored by national organizations. Examples include the 29 programs funded by the New Jersey State Department of Human Services School-Based Youth Service initiative, and the 23 Robert Wood Johnson School-Based Health Program clinics, as well as smaller, local networks of two or three programs. Health department programs (57%) and programs in the "other" category (52%) most often participate in these networks, health centers are least often in networks, with only 18% participating.

Interorganizational Relationships

Percent with:	All Programs	School	Health Center	Hospital	Health Department	Community Center	Other
N	435	194	40	95	35	50	21
Any linkages	95	97	100	89	94	100	90
Shared staff	37	56	38	31	34	44	19
Contact persons	60	63	65	44	60	68	62
Joint meetings	64	68	65	57	60	78	57
Referral networks	96	95	100	94	94	100	90

Coalitions

Percent participating:	All Programs	School	Health Center	Hospital	Health Department	Community Center	Other
N	435	194	40	95	35	50	21
General adolescent health	65	72	50	69	46	54	62
Teen pregnancy	69	73	73	65	54	72	67
Substance abuse	39	48	40	28	20	40	33
AIDS/HIV	9	10	5	12	3	6	5
Suicide/mental health	4	5	0	2	0	6	0
Street kids/drop-outs	2	1	3	1	3	10	0
School-based health clinics	5	10	3	1	3	0	0
Child health care	3	3	5	3	0	4	5
Other	9	8	5	7	14	12	10

Most programs (88%) also participate in a variety of local or regional coalitions. Ninety-three percent of the school-based programs surveyed participate in local coalitions on adolescent health. However, fewer than one-third of all programs participating in coalitions convened these groups. Community center programs appear most actively involved in organizing this type of community-wide support; almost half of community center programs organized the coalitions in which they participate.

Budgets

Programs were asked to report their best estimate of their total annual operating budget and to identify the percent of their budget from different sources. Many programs noted difficulty in identifying specific adolescent program budgets to provide this information; consequently, budget data was available from only 366 programs.

Comprehensive programs have higher annual operating budgets than non-comprehensive programs.

The average annual operating budget for these programs was $382,060 and the median was $200,000. Reported budgets, however, ranged from almost nothing to over $4,000,000 per year. Adolescent program's annual budgets vary between program models. Community center ($890,000) and health center programs ($700,000) had the highest average annual budget. Hospital-based programs had average budgets of $590,000, and school-based programs ($390,000) and health department programs ($360,000) had the lowest average annual budget. In general, comprehensive

Program Size and Budgets

Program Size Quartile	Average Total Annual Operating Budget
<900 encounters/year	$158,000
900-2117 encounters/year	$202,000
2118-5490 encounters/year	$361,000
>5500 encounters/year	$1,334,000

programs had higher annual operating budgets than non-comprehensive programs ($1,735,000 vs. $802,000, respectively). The smallest programs (fewer than 900 encounters per year) had average annual operating budgets of $158,000, while medium and large programs average $202,000 and $361,000, respectively. The largest programs have much larger annual budgets, averaging over $1.3 million per year.

Funding sources

Only 26% of programs have one funding source; 23% had two sources of funding, and 5% of programs have five or more funding sources. Surprisingly, only 44% of all programs collect patient fees, including Medicaid. More than half of health center, hospital-based and "other" programs collect fees; however, only 31% of school-based programs and 20% of health department programs collect fees.

Seventy-two percent of programs receive funding from federal sources, including the Maternal and Child Health Bureau (MCHB), the Health Resources Services Administration (HRSA), Title X, and the Office of Adolescent Pregnancy Prevention. Public health service funding was the most common cited source of federal support. Health center (25%) and community center (14%) programs more commonly received HRSA funding than other program models. Health department programs more often receive funding from the MCHB.

Only 44% of all programs collect patient fees, including Medicaid.

State and local government were also common sources of funding, with 75% of all programs receiving some state or local government support. Many state govern-

ments historically have funded categorical services and 80% of non-comprehensive programs receive state or local government funding. Seventy three percent of comprehensive programs also recieve state or local goverme t funding. One fourth of all programs receive stat or local health department funding. Only 4% of al. programs receive funding from state educational sources.

Non-comprehensive programs were more likely to receive state government funding, and comprehensive programs were more likely to receive private foundation funding.

Fewer than 30% of programs receive funding from private foundations. Among programs that receive private funding, half received money from one source and 11% received funds from two sources. The Robert Wood Johnson Foundation is the most common source of private funding for adolescent health programs. The majority of programs receiving RWJ funds reported being part of the Foundation's school-based health program. Comprehensive programs were more likely to receive funding from private foundations than were non-comprehensive programs.

Program Services

Primary health care services

We defined primary care as consisting of preventive care, first contact, comprehensive, and longitudinal care." Almost all programs (91%) provide preventive health care and health education (93%) on site. Most programs (84%) also provide first contact health care on site. Longitudinal care, which has been associated with better preventive care, more appropriate use of services, less preventable illness, greater patient satisfaction, and eventually lower total costs," is provided by two out of three adolescent health programs. Nearly all hospital-based programs provide longitudinal (90%) services on site. Only half of school-based health department or community center programs provide longitudinal health care for adolescents. As discussed earlier, 60% of programs describe the services they provide as comprehensive.

The following discusion of the various other services programs provide to adolescents presents differences

Primary Health Care Services

Percent Providing:	All Programs	School	Health Center	Hospital	Health Department	Community Center	Other
N	435	194	40	95	35	50	21
Preventive care	91	89	95	97	97	80	90
First contact care	84	81	95	96	85	69	76
Longitudinal care	65	56	75	90	53	45	67
Comprehensive care	62	52	68	96	39	44	71
Health education	94	98	85	91	97	90	90

in services provided by program type. For comparison of the services provided by comprehensive and non-comprehensive programs, see pages 23-26.

Health education

Almost all programs provide AIDS education and other health education.

Health education is an important component of effective preventive services for adolescents. Nearly all programs (94%) provide general health education to adolescents on-site. Almost all also report providing health education services for specific health problems; 93% of programs provide AIDS education on-site, 84% provide nutrition education, and 66% provide parenting education to adolescents. School-based programs (73%) and community center programs (74%) were most likely and hospital-based programs (52%) least likely to provide parenting education on-site.

Health Education Services

Percent Providing:	All Programs	School	Health Center	Hospital	Health Department	Community Center	Other
N	435	194	40	95	35	50	21
Health education	94	98	85	91	97	90	90
Nutrition education	84	88	93	86	83	71	67
AIDS education	93	94	90	93	94	92	95
Parenting education	66	73	63	52	60	74	57

Family planning and contraceptives

Two-thirds of all programs provide family planning services and 58% provide contraceptive services on site. Most of the remainder refer patients for these services, although 4% of programs neither provide nor refer their adolescents for contraceptive services. Almost all hospitals, health departments and health centers provide both family planning and contraceptive services on site. Slightly more than 60% of school-based or community center programs provide family planning services. In contrast, contraceptives were provided on site by 60% of community center programs, and by only 27% of school-based programs.

Only 27% of school-based programs provide contraceptives.

Services Related to Sexual Activity

Percent Providing:	All Programs	School	Health Center	Hospital	Health Department	Community Center	Other
N	435	194	40	95	35	50	21
Family planning	73	61	83	94	91	62	76
Contraceptives	58	27	83	95	91	60	71
STD treatment	71	55	83	97	91	56	81
HIV testing	46	23	68	81	56	36	67
AIDS education	93	94	90	93	94	92	95
Pregnancy testing	80	71	93	96	89	70	81
Prenatal care	39	32	58	43	65	34	29

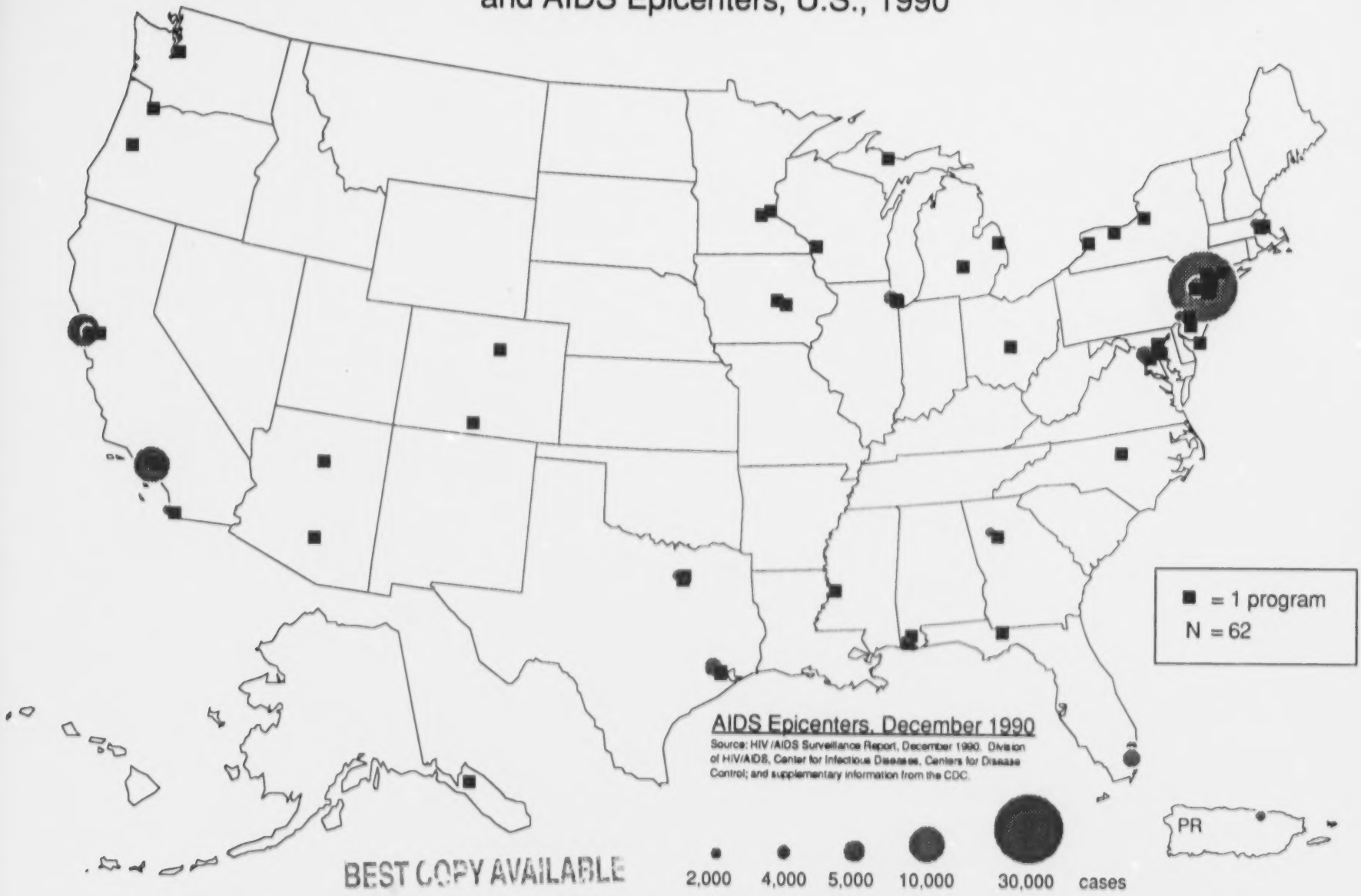
STD/HIV related services

Seventy one percent of all programs provide STD treatment on-site. Almost all hospital-based (97%), health department (91%), health center (83%) and "other" programs (81%) provide STD treatment on site; however, only 55% of school-based programs and 56% of community center programs provide STD treatment. Although 93% of all programs provide AIDS education to their adolescent patients, less than half provide HIV testing on site. HIV testing is most commonly offered by hospital-based programs (81%); less than one-third of community center programs and one-fourth of school-based programs provide HIV testing.

Only 71% of programs treat STDs on-site; fewer than half of all programs provide HIV testing.

Forty-three percent (187) of programs specifically reported targeting services to adolescents who engage in unsafe sexual activity. However, these programs were no more likely to provide family planning services, contraceptives, or HIV testing on site than those programs not targeting risky sexual behavior. Only 64 programs reported targeting services to HIV-infected youth. These programs were more likely to provide HIV testing (60% vs. 42%; $p \leq .01$) and to provide contraceptives on site (73% vs. 54%; $p \leq .01$). However, 27% of these programs still did not provide contraceptives on site. As seen on the following page, programs that target HIV positive youth were more likely to be located in or near HIV epicenters.

Comprehensive Adolescent Health Service Programs Targeting HIV+ Teens, and AIDS Epicenters, U.S., 1990



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Source: Effective Health Services for Adolescents. JD Klein, et al. Cecil G. Sheps Center for Health Services Research; Center for Health Promotion and Disease Prevention; Center for Early Adolescence. University of North Carolina at Chapel Hill. 1992.
Funded by Grant No. R48-CCR402177 from the Centers for Disease Control, Grant No. 1-F32HS00035-01 from the Agency for Health Care Policy and Research, and by the AMA Education and Research Foundation.

Pregnancy testing and prenatal care

Eighty percent of programs conduct pregnancy testing on-site. Nearly all hospital-based, health center, and health department programs provide pregnancy testing services on site. Seventy-one percent of school-based and community center programs provide pregnancy testing on site.

Although pregnant and parenting adolescents often need a variety of special services, and half of all surveyed programs report targeting services to pregnant or parenting teens, less than forty percent of programs offer prenatal care. More health department (65%) and health center (58%) programs provide prenatal care on site than do hospital-based (43%), school-based (32%) and community center programs (34%). In contrast, parenting education is provided by as many as two-thirds of all adolescent health programs.

Mental health and social work services

Approximately two-thirds of programs provide on-site psychological, other mental health, and family counseling to adolescents. Three out of ten programs also report targeting services to adolescents at risk for depression and suicide. Most hospital programs (81%) and the majority of school-based programs (69%) provide mental health services. Approximately half of health center, health department and community center programs also offer counseling to adolescents.

Two-thirds of programs provide counseling services on-site.

Three-fourths of adolescent health programs provide social work services on site. Most hospital-based (91%) and community center programs (88%) provide social work services on site. In contrast, fewer school-based (69%) and health department programs (57%) provide social services on site.

Mental Health Services

Percent Providing:	All Programs	School	Health Center	Hospital	Health Department	Community Center	Other
N	435	194	40	95	35	50	21
Psychological counseling	66	69	50	81	54	53	62
Mental health counseling	64	73	53	68	41	58	43
Family counseling	63	62	65	62	53	78	43
Social work services	76	69	78	91	57	88	62
Drug abuse treatment	22	25	18	23	6	28	10
Alcohol abuse treatment	22	24	18	23	6	28	10

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Substance abuse treatment

Despite the high prevalence of substance abuse among youth, only 37% of programs target services to adolescents who abuse alcohol or other drugs, and fewer than one-fourth of all programs actually provide drug and/or alcohol abuse treatment on site. School-based and community center programs are somewhat more likely to target alcohol and substance abuse behavior than other program types. However, only 28% of community center programs and 25% of school-based programs report providing alcohol or substance abuse treatment on site.

Laboratory and pharmacy services

Seventy-four percent of all programs have laboratories on site. Almost all hospital-based and health center programs have laboratory facilities, while only 61% of school-based programs and 51% of community center programs provide these services. Fewer than half of all programs have pharmacies on-site. Three-fourths of hospital-based programs and many "other" programs have pharmacy services, and only one-third of school-based or community center programs have pharmacy services on site.

74% of programs have laboratories and 47% provide pharmacy services.

Other Health Services

Percent Providing:	All Programs	School	Health Center	Hospital	Health Department	Community Center	Other
N	435	194	40	95	35	50	21
Laboratory	74	61	90	98	82	51	86
Pharmacy	47	34	43	72	58	32	76
Dental	18	11	35	29	21	20	0
Rehabilitation (PT/OT)	11	3	13	36	0	2	5

Dental services

Dental care is offered by 18% of all adolescent health service programs. Health centers (35%) and hospital-based programs (29%) provide dental care on-site more often than other program models.

Rehabilitation services

Rehabilitation services (e.g., physical therapy or occupational therapy) are available in only 11% of adolescent health programs. Hospital-based programs are most likely to provide these services (36%), compared to 13% of health center programs and fewer than 5% of other program types.

Educational and community services

Educational success is a major predictor of social and psychological health for adolescents. Despite this, relatively few adolescent health programs provide educational services related to school performance. Although 30% of programs specifically target services to adolescents with poor academic performance, only 21% of all programs provide tutoring and 12% provide GED or vocational training. Seventy-one percent refer adolescents for these services, and as many as 22% of programs neither provide nor refer for tutoring, 16% of programs neither provide nor refer for GED or vocational help. Community center programs were most likely to provide tutoring (53%) or GED training (37%) on site. Only 24% of school-based health programs and fewer than 10% of health center, hospital and health department programs provide tutoring to their adolescents. Only 5% of health center and 7% of hospital-based programs provide GED or vocational education, and 25% of these type of programs neither provide nor refer adolescents for these services. No health department programs provide GED or vocational training.

Educational services are provided by relatively few programs. Community center programs are most likely to provide educational assistance.

Nearly 30% of all programs and 60% of community center programs provide adolescents with the opportunity to become involved in community service activities. In contrast, only 3% of health department programs provide community service opportunities. Similarly, 24% of programs have mentorship pro-

Educational and Community Service

Percent Providing:	All Programs	School	Health Center	Hospital	Health Department	Community Center	Other
N	435	194	40	95	35	50	21
Tutoring	21	24	10	9	6	53	24
GED/vocational training	12	13	5	7	0	37	10
Community service	29	31	27	21	3	60	24
Mentorship	24	26	18	13	9	53	25

grams. Although half (53%) of community center programs (53%) and 26% of school-based programs provide mentoring activities for adolescents. Few hospital-based (13%) or health department (9%) programs provide mentorship for their adolescents.

Food

Food assistance is provided by 14% of programs. An additional 60% of programs refer adolescents in need of food; however, 27% of programs neither feed nor refer adolescents in need of food. Community center programs provide food assistance more often than other program types, with 32% providing food on site. Less than 5% of health center and health department programs provide food services on site. However, supplemental food for pregnant adolescents and their children is available through the Women's, Infant's and Children's (WIC) Program at 58% of health center and 65% of health department programs. Fewer than one third of all programs and only 20% of school-based or community center programs provide WIC services.

Child care

Day care for the children of adolescents is important if parenting adolescents are to successfully pursue educational or employment goals. However, only ten percent of adolescent health programs offer day care services on site. Slightly more school-based, community center and "other" programs provide day care. In contrast, no health center or health department programs and only two percent of hospital-based programs provide day care on site.

Legal aid

Legal aid is available on-site in only 3% of adolescent health programs. Two-thirds of programs refer adolescents in need of legal aid; the remainder neither provide nor refer for legal services.

Shelter

Relatively few programs specifically serve runaway and homeless youth, and only 3% of programs provide shelter for adolescents. The 17% of programs that report targeting services to runaway and homeless adolescents are most commonly health center or community center programs. Most programs (74%) refer teens in need of shelter to other service providers; however, 23% of programs neither provide nor refer adolescents for shelter or housing assistance.

Recreation

Exercise and regular physical activity promotes both physical fitness and self-esteem.[70,71] Organized recreational activities are important in helping adolescents participate in regular physical activities. Recreational services may also help programs reach adolescent boys, and help increase outreach for other services. However, only twenty percent of all programs provide recreational activities for adolescents. Half of community center programs and one-fourth of school-based programs have recreational activities. Very few hospital (7%) or health department (3%) programs provide recreational services.

Program Staffing

We asked programs to report the total number and the type of staff they employ. Overall, programs have a mean of 9.5 full time and 4.9 part time, and a median of 4.3 full-time and 3.0 part-time employees on staff. The actual number of full time staff ranged from 0 to 65 and part-time staff ranged from 0 to 22. On average, 82% of program's staff members are female and 23% are male. The overall ethnic distribution of program staff was 47% White, 27% Black, 17% Hispanic, 5% Native American, and 4% other ethnicity.

The average program has 1.9 FTE primary health care providers (MD/PA/NP) and 2.3 FTE nursing staff.

Health care staff

Primary health care providers (physicians, physician assistants and nurse practitioners) were employed by 79% of all programs. Sixty-six percent of programs had nurses and 45% had health educators on staff. Among programs with primary care providers, the modal staffing pattern was 1.9 primary care provider and 2.3 nursing FTEs. School-based programs were slightly less likely to have primary care providers or nurses on staff than were other types of programs. Overall, comprehensive programs were more likely to have health care staff than non-comprehensive programs (94% vs. 56% for primary care providers and 83% vs. 67% for nursing staff).

Mental health staff

Only one-third of all programs have psychiatrists, psychologists or mental health workers on staff. Among programs with mental health staff, most had between 1-1.5 FTEs. Community center programs were most likely and health center programs were least likely to have mental health providers. Most programs (61%) also have social workers on staff. Hospital and community center programs were more likely to have social workers than other program models. Comprehensive programs were also more likely to have social workers on staff.

Only one-third of all programs have mental health staff.

Peers

Ten percent of all programs have peer counselors on their staff. Twenty percent of community center programs use peer counselors; 18% of health center and 22% of community center programs also have peer educators on staff. More non-comprehensive programs than comprehensive programs have both peer educators and peer counselors on staff.

Administrative staff

Administrative staff included administrators, secretaries and receptionists, fund-raisers, program development staff, and research staff. Generally, programs have between 1.0-1.5 administrative FTEs. Most programs (68%) report having secretarial staff or receptionists, and half report having a program

administrator, with an average of 1.0-1.5 total administration FTEs. Non-comprehensive programs were more likely to have administrative staff than comprehensive programs. Community center programs (78%) were most likely to have administrators; most had between 3-5 administrative FTEs. The largest programs have more than twice as many administrative staff as smaller programs (5.0 vs. 1.5 FTEs). Eleven percent of all programs report having

Program Staffing

Staff Category	Percent of Programs with Staff in Category	Average FTE's for programs with any staff in catagory
Physician	67	1.5
Nurse	76	2.7
PA/NP	58	1.2
Health Educator	45	1.2
Dieticians/Nutritionist	29	0.5
Dentist/Hygenists	9	0.6
Mental Health Worker	57	2.4
Social Worker	61	1.4
Administrator	76	3.0
Educator	21	2.6
Outreach Worker	23	1.2
Recreational Worker	9	0.6
Others	15	1.6

staff specifically for fundraising. Community center programs and larger programs were most likely to have fund-raisers. Fund raisers also were slightly more common among non-comprehensive programs than comprehensive programs. Data management and research staff were found in only 2% of all programs.

Other staff

Twenty-two percent of all programs have staff dedicated to outreach, generally between 1-1.5 FTEs. Half of all community-based programs have outreach workers. In comparison, only 14% of hospital-based programs employ outreach workers. Non-comprehensive programs are more likely than comprehensive programs to have outreach workers on staff.

Overall, fifteen percent of all programs have educators on staff, usually consisting of 0.5-1.5 FTEs. Half of community center programs have 2-3 FTE teachers or educators on their staff. Fourteen percent of school-based programs have educators on staff. In contrast, only 3% of health department programs and 6% of hospital-based programs have teachers on staff. Non-comprehensive programs were twice as likely as comprehensive programs to employ educators. Only 10% of programs had recreational staff. Community center and school-based programs most often had recreational staff. Again, non-comprehensive programs (18%) were more likely than comprehensive programs (4%) to have recreational staff.

Non-comprehensive programs and community center programs most often have peer counselors, teachers, and outreach workers on staff.

Program Evaluation

While comprehensive adolescent health programs are thought to be effective at providing adolescents with the services they need, very few evaluations of these programs have been published.[4] Nonetheless, sixty percent of responding programs report having been formally evaluated. We found considerable variation in the type of evaluations programs have performed. Most programs collect their evaluation data at the time of each patient visit (45%) or through user surveys (33%). Only 14% of all programs reported collecting evaluation data through population-based surveys. Fifteen percent of programs also report collecting evaluation data by having adolescents complete health risk appraisals. Thus, although many programs conduct evaluation studies, few use rigorous research methodology in doing so.

Program Evaluation

Outcomes Measured:	All Programs	School	Health Center	Hospital	Health Department	Community Center	Other
N	435	194	40	95	35	50	21
Pregnancy	59	61	64	51	64	68	43
Sexual activity	36	39	21	43	21	38	29
Contraceptive use	45	47	36	47	42	50	33
STDs	49	49	51	49	61	44	33
Drug/alcohol use	37	40	23	38	24	46	29
Smoking	25	31	21	27	15	12	19
Violence/injury	22	29	3	22	9	16	24
Suicide/depression	31	41	8	33	18	22	24
Fitness/exercise	15	21	3	11	3.0	16	14
Dietary habits	22	25	13	22	15	22	19
Primary care	28	31	28	28	18	26	24

The efficacy of clinical preventive services ability to prevent risky behaviors by adolescents is probably between 5-10%; thus studies with sufficient power to show differences in youth risk behaviors would require sample sizes of several thousands." Nonetheless, 66% of programs report measuring specific risk behaviors, such as pregnancy, STDs, contraceptive use, or sexual activity, as outcomes. Only 28% of programs measure whether the adolescents they serve have access to primary care. Relatively few programs measure injury, interpersonal violence, fitness and exercise, or seatbelt use among adolescents.

Study Limitations

This study is limited in several ways. First, while we have tried to identify all of the programs that provide comprehensive adolescent health services in the US, we have only identified between 85-90% of programs, and the survey responses are from 435 (67%) of the identified programs. We know that programs located in rural areas were slightly more likely to have responded to our survey; however, programs that were not identified and non-respondents may differ from respondents in other, unknown ways. Additionally, we did not try to identify all categorical programs for adolescents, only comprehensive ones. Thus we present results from one end of the spectrum of comprehensive service delivery.

Secondly, we used self-reported data from programs to describe their systems and services; we were unable to seek independent confirmation of the data provided. These self-reports may be biased, especially with regard to issues relating to programs' "success." To minimize these biases, we promised confidentiality, used strict definitions for whether services were provided on site, and tried to limit questions to description, rather than interpretation or opinions. Because of this, we were able to glean relatively little information about the impact of individual programs.

Thirdly, we were limited by the need to define programs within categories to allow for summarization in this report. The models, based on site of service delivery, are only models. Individual programs each exist within a unique social and political environment. Each was nominated because one or more knowledgeable expert identified the program as a delivery source

for comprehensive, integrated adolescent services. And yet many of these programs did not report providing comprehensive health services on site. We have tried to define what we believe comprehensiveness is to these programs; however, these definitions are imprecise, and we were only able to scratch the surface of the complexity of coordination and alliances between programs and other providers. We assume full responsibility for any errors or misinterpretations.

And finally, our data cannot possibly reflect the commitment of the programs to the youth they serve. Each program in this study represents a collection of dedicated service professionals, often struggling to secure their next year's funding in the face of shrinking state budgets or foundation demonstration project funding. Many respondents commented on the need for more resources and/or more staff. These brief summaries could not possibly do justice to these many individual efforts.

Summary and Conclusions

Adolescents have serious health problems, and many youth are at risk for social as well as medical morbidities. Providing comprehensive health services is a key part of improving the health status of adolescents. In this study, we surveyed 664 programs nominated for their provision of comprehensive or integrated health services to adolescents in the US. Sixty seven percent (435) of programs responded to a mailed survey. Major program models identified include: school-based; hospital-based; health center; health department; and community center programs.

Although all programs were nominated for being comprehensive, in fact, by self-definition, only 60% report that they provide comprehensive health services on site. The literature on comprehensive adolescent and school health tends to address health system and access issues (such as confidentiality, convenience or affordability). We found few differences between comprehensive and non-comprehensive programs in these areas. We did find substantial differences in the services provided in comprehensive and non-comprehensive programs. Comprehensive programs should provide the following services to address the major morbidity and mortality of youth: preventive, first contact, and longitudinal health care; laboratories; social work services; STD treatment; pregnancy testing; family planning; AIDS education; nutrition education, and general health education; psychological or other mental health counseling; pharmacies; contraceptive services; HIV testing; and outreach.

In reality, very few programs provide some types of services that are often advocated as being part of comprehensive, coordinated services for adolescents. For example, relatively few comprehensive programs provide drug or alcohol treatment, despite high rates of substance use and drinking to abuse by adolescents. Similarly, few programs provide either recreational opportunities or transportation, despite the theoretical importance of these services to helping ensure that adolescents actually receive care. If these kind of services must be part of "comprehensive" care for adolescents, then few existing programs truly provide a comprehensive range of services.

Certain services were especially absent from some types of program. Hospital-based programs neglect outreach, and health center and health department programs provide fewer mental health services than other program models. Similarly, even comprehensive school-based programs generally do not provide contraceptives, HIV testing, or pharmacy services. These inconsistencies are not justified by obvious differences in the populations of adolescents served in these different kind of programs. Furthermore, these differences were not compensated for by greater coordination of services by most of these school-based programs.

Programs' administrative parent organization was a major predictor of comprehensiveness, regardless of program service delivery site. Programs run by health sector organizations, rather than by other agencies, are most likely to provide a full range of services. School- based programs were more likely to be com-

prehensive if they were administered by health organizations than by schools or educational agencies. This has implications for school-based programs' ability to provide contraceptive or STD related services, and also for how health or social services should be organized within schools. Our findings support Dryfoos' conclusion that control of school-based programs is most appropriately based outside of the school.[1] This may be due to a lesser ability on the part of school-based, school-run services to mobilize material support and alliances between organizations. Alternatively, the lack of organized support may make the political barriers to providing some services impassable. Nonetheless, better integration and more specific administrative relationships between health, education and other service sectors mandated by agencies that fund school-based service programs would help programs provide comprehensive services or ensure coordinated efforts with other providers.

Overall, relatively few adolescents are served by comprehensive adolescent health programs. Additionally, according to the National Ambulatory Medical Care Survey,[4] less than half of all adolescents visit a primary health care provider each year, and only a small portion of youth receive preventive health services. Despite some of the limitations of individual program types, if America's adolescents are to have access to comprehensive health programs, many more service delivery programs and systematic attempts to provide more complete services are needed.

A stable, secure funding system for adolescent health programs is also critically needed. Comprehensive programs cost more than non-comprehensive ones.

They also were more likely to depend on private foundation sources for part of their budget. Most programs depend on multiple sources of funding, reflecting the patchwork of categorical funding streams available for adolescents. The predominant source of funds comes from state and federal health dollars. Interestingly, fewer than half of all programs collect patient fees at all. Even though many adolescent are uninsured, many programs do not obtain payment for their services, even when reimbursement may be available.

Adolescent programs vary widely in the number and types of services they provide. Part of this variation is related to comprehensiveness. However, program type is a more significant determinant of the service programs provide. Although many programs that do not provide key services on site refer for more complete services, we believe this fragmentation of service delivery is inherently suboptimal. Compliance, satisfaction, transportation, and out-of-pocket costs, all decrease the likelihood that adolescents will use referral-based services. The need to centralize scarce resources and the cost implications of providing everything at every site mitigates against providing services (such as rehabilitation) at all sites. However, this argument does not apply to more basic services, such as counseling, substance abuse, outreach or contraceptives. That few programs take an active role in monitoring compliance and follow-up only fuels the notion that many youth are slipping through the cracks.

Young people who do poorly in school often have multiple problems and are less likely to become healthy

adults."[72] Despite this, educational services, community service and mentorship are provided by relatively few programs. Additionally, many programs, especially those in hospitals and health departments, neither provide nor refer adolescents for educational services. Community centers are most likely to address educational and service issues, and schools obviously have educational services on-site. Adolescent programs based in health institutions seem to have an especially difficult time integrating health and educational goals. Better collaboration between health and education services in all delivery settings is essential.

Finally, there has been substantial energy spent on evaluation of the services provided in adolescent programs. More than half of all programs have spent time and resources on evaluation. Unfortunately, these efforts seldom have used rigorous methods with regard to who they study, and too many evaluations have focused on uncontrolled or uncontrollable questions, with sample sizes that are too small.[73] It will be difficult or impossible to answer questions about the effectiveness of clinical services at changing commonly measured indicators of adolescent morbidity and mortality, short of widespread field trials.

In summary, few American adolescents are being served by comprehensive or integrated service programs. Our findings are a first attempt to describe the services available to adolescents in the US. We have not tried to address whether one model for the provision of services to youth is better than others. Rather, we have described some of the strengths and weaknesses of existing programs, in the hope that this will both

strengthen these programs and promote or enhance the development of additional comprehensive services for youth. The defining characteristics of adolescent health service "comprehensiveness" are not well established, and there exists a substantial gap between what many say should be provided to youth and what is actually provided. Advocacy and leadership from key organizations and specific providers, including physicians and health educators, are an important part of improving the availability and quality of services to all youth. Actually improving the services provided will depend much more upon local community administrative leadership, upon fostering strong alliances and shared goals between health, education and other youth serving organizations, and upon the availability of resources, financial and otherwise, dedicated to adolescent health.

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